

CHROMOSOME NUMBERS OF SOME
PHYTOGEOGRAPHICALLY INTERESTING CHILEAN PLANTS

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Within the flora of Chile there are a number of floristic elements of which perhaps three may be singled out as having particular phytogeographical interest. Two, in North Central and Southern Chile, show ties across the equator with, respectively, Southwestern North America and parts of the North Temperate region and a third, in South Chile, is linked over Antarctica with Australia and New Zealand. Taxonomists are currently investigating in detail several groups of species within these elements because the inter-continental affinities are, in several cases, at the specific level and they are especially relevant to problems of plant evolution and distribution.

TABLE 1. CHROMOSOME NUMBERS OF SOME CHILEAN PLANTS.

SPECIES	NUMBER	LOCALITY	COLLECTION
GOODENIACEAE			
<i>Selliera radicans</i> Cav.	n=8*	W. side of Tumbes Peninsula, Prov. Concepción, Chile	Moore 286 UCB, US, RSA
COMPOSITAE			
<i>Franseria chamissonis</i> subsp. <i>bipinnatisecta</i> (Less.) Wiggins & Stockwell	n=18*	ca. 1.5 km. N. of Lirquen, Prov. Concepción, Chile	Moore 291 UCB, US, RSA
<i>Adenocaulon chilense</i> Less.	2n=46**	ca. 200 m., Perez Rosales Pass, Prov. Llanquihue, Chile	Moore 327 UCB, US
<i>Adenocaulon bicolor</i> Hook.	2n=46**	ca. 400m., near Corvallis, Benton County, Oregon, U.S.A.	Chambers 1535 LA
<i>Adenocaulon bicolor</i> Hook. var. <i>adhaerescens</i> Makino	2n=46**	Shinano-Oiwake, Mt. Asama, Nagano Prefecture, Honshu, Japan, ca. 1000m.	I. Fukuda in October, 1960

* Meiosis in pollen mother cells.

** Mitosis in root tips.

The three Chilean species for which data are recorded in this note are all comparable in having the same chromosome numbers as have been determined for them or their close relatives in other continents. Thus, as in the counts for Chilean specimens presented in Table 1, *Selliera radicans* Cav. has eight bivalents at meiosis in plants from New Zealand (Hair and Beuzenberg, 1960) and *Franseria chamissonis* Less. subsp. *bipinnatisecta* (Less.) Wiggins and Stockwell forms eighteen bivalents

in Californian material (Wiggins and Stockwell, 1937). Representatives of three disjunct taxa of the genus *Adenocaulon* have all been counted for the first time (Table 1) and all share a somatic complement of forty-six chromosomes. Further studies of relationships within this genus are in progress.

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LITERATURE CITED

- HAIR, J. B. and E. J. BEUZENBERG. 1960. Contributions to a chromosome atlas of the New Zealand Flora. 4. Miscellaneous families. N. Z. Jour. Sci. 3:432-440.
WIGGINS, I. L. and P. STOCKWELL. 1937. The maritime *Franseria* of the Pacific Coast. *Madroño* 4:119-120.

CHROMOSOME COUNTS IN SECTION ERYTHRANTHE OF THE GENUS MIMULUS (SCROPHULARIACEAE). II¹

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This investigation formed part of our long range biosystematic study of section *Erythranthe* (Vickery, 1956; Vickery, Mukherjee, and Wiens, 1958). It had two purposes. The first was to determine the chromosome numbers of two rare species, *Mimulus eastwoodiae* Rydberg and *M. nelsonii* Grant. The second was to analyze the genome homologies of the more common species of the section.

For the cytological portion of the investigation, buds expected to contain the desired stages of meiosis were placed for 24 hours in a freshly prepared fixative consisting of 3 parts absolute ethanol to 1 part glacial acetic acid saturated with ferric acetate. The anthers were then dissected from the buds, squashed, and lightly stained in aceto-carmin. For each determination, the chromosomes of ten or more cells were carefully studied and counted under a phase contrast microscope. Many of the configurations were recorded with the aid of a camera lucida.

Both *M. eastwoodiae* and *M. nelsonii* were found to have $n=8$ chromosomes (fig. 1 and table 1) as do the three more common species of the section, *M. cardinalis* Douglas, *M. lewisii* Pursh, and *M. verbenaceous*

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